



# EFFECTIVENESS OF TWO-WAY STOP CONTROL AT LOW VOLUME RURAL INTERSECTIONS

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## RESEARCH

### Introduction

STOP signs, which require traffic to stop regardless of whether conflicting traffic is present or approaching the intersection, are the primary form of traffic control at intersections in the United States. Despite the large numbers of crashes at STOP signs and their relatively severe nature, the warrants for the use of STOP signs are very broad in nature and lack specificity.

### Project Objective

The goal of this research effort was to investigate the development of specific (i.e., quantifiable) warrants for the installation of 2-way STOP control at low volume rural intersections in Kansas. Specifically, the goal of this research was to develop guidelines to assist traffic engineers in evaluating the need for STOP control at low volume rural intersections in Kansas on the basis of motor vehicle crash histories, sight distance, roadway speed and other factors.

### Project Description

Problem intersections were identified through expected-value analysis of crash frequency, type and severity, intersection sight distances, MUTCD guidelines and commentary driving techniques.

### Project Results

It is the recommendation of this study that state and local agencies continue to use the guidelines in the Manual for Uniform Traffic Control Devices (MUTCD) as the basis for assessing the need for 2-way STOP control at low volume intersections. This report provides a general methodology that the traffic engineer can use to assess the sight distance and crash history considerations addressed in the MUTCD warrants, as well as driver error and other human factors that might influence the decision to use STOP control. The study further recommends the use of Commentary Driving as a means to address these various factors in a systematic and comprehensive manner. In assessing the need for STOP control in terms of intersection crash history, the following additional guidelines should be considered. For low speed rural intersections, STOP control may be effective in reducing traffic crashes. In the case of high-speed intersections, there is evidence which suggests that STOP control may not be an effective means of reducing traffic crashes. However, until this issue is resolved, it is suggested that STOP control be considered for intersections with three to four crashes in a 3-year period. This general guideline is applicable to crash types that may be correctable by application of STOP control (i.e., side swipe, angle and rear end collisions).

In evaluating this guideline, the engineer should also consider other countermeasures that have been shown to be effective in addressing safety problems at rural intersections. These countermeasures could include sight distance improvements, speed control measures, and/or geometric improvements such as increased curb radii. At high-speed roadway intersections, the engineer may also wish to consider advance warning or advisory signing on the major roadway approaches to the intersection.

### Report Information

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